EITEL-McCULLOUGH, INC.

SAN BRUNO, CALIFORNIA

100TL

LOW-MU TRIODE

MODULATOR
OSCILLATOR
AMPLIFIER

The Eimac 100TL is a low-mu power triode having a maximum plate dissipation rating of 100 watts, and is intended for use as an amplifier, oscillator or modulator. It can be used at its maximum ratings at frequencies as high as 40-Mc.

Cooling of the 100TL is accomplished by radiation from the plate, which operates at a visible red color at maximum dissipation, and by means of air circulation by convection around the envelope.

GENERAL CHARACTERISTICS

ELECTRICAL

Filament: Thoriated tungsten
- Voltage - - - - 5.0 volts
- Current - - - - 6.3 amperes

Amplification Factor (Average) - - - - 14

Direct Interelectrode Capacitances (Average)
- Grid-Plate - - - - 2.0 μμf
- Grid-Filament - - - - 2.3 μμf
- Plate-Filament - - - - 0.4 μμf

▶ Transconductance (i_b=225 ma., E_b=3000v., e_c=−90v.) 3000 μmhos

Frequency for Maximum Ratings - - - - 40 Mc.

MECHANICAL

Base - - - (Medium 4-pin bayonet, ceramic) RMA type M8-078

Basing - - - - RMA type 2M

▶ Mounting - - - - Vertical, base down or up.

▶ Cooling - - - - Convection and Radiation.

▶ Recommended Heat Dissipating Connectors:
- Plate - - - - Eimac HR-6
- Grid - - - - Eimac HR-2

Maximum Overall Dimensions:
- Length - - - - 7.75 inches
- Diameter - - - - 3.19 inches

Net weight - - - - 4 ounces

Shipping weight (Average) - - - - 1.5 pounds

AUDIO FREQUENCY POWER AMPLIFIER AND MODULATOR

Class-AB₂ (Sinusoidal wave, two tubes unless otherwise specified)

MAXIMUM RATINGS

D-C PLATE VOLTAGE	3000 MAX. VOLTS
MAX-SIGNAL D-C PLATE CURRENT, PER TUBE	225 MAX. MA.
PLATE DISSIPATION, PER TUBE	100 MAX. WATTS

▶ TYPICAL OPERATION

D-C Plate Voltage	1500	2000	2500	Volts
D-C Grid Voltage (approx.)*	—65	—110	—145	Volts
Zero-Signal D-C Plate Current	80	60	48	Ma.
Max-Signal D-C Plate Current	320	280	250	Ma.
Effective Load, Plate-to-Plate	8800	15,000	22,000	Ohms
Peak A-F Grid Input Voltage (per tube)	235	270	290	Volts
Max-Signal Peak Driving Power	21	22	20	Watts
Max-Signal Nominal Driving Power (approx.)	10.5	11	10	Watts
Max-Signal Plate Power Output	280	360	425	Watts

*Adjust to give stated zero signal plate current.

RADIO FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Class-C Telegraphy or FM Telephony (Key-down conditions, per tube)

MAXIMUM RATINGS

D-C PLATE VOLTAGE	3000 MAX. VOLTS
D-C PLATE CURRENT	225 MAX. MA.
PLATE DISSIPATION	100 MAX. WATTS
▶ GRID DISSIPATION	15 MAX. WATTS

TYPICAL OPERATION

D-C Plate Voltage	1500	2000	3000	Volts
D-C Grid Voltage	—175	—225	—400	Volts
D-C Plate Current	190	165	165	Ma.
D-C Grid Current	37	28	30	Ma.
Peak R-F Grid Input Voltage	425	450	650	Volts
Driving Power (approx.)	14	11	20	Watts
Grid Dissipation	7.5	5	8	Watts
Plate Power Input	285	335	500	Watts
Plate Dissipation	100	100	100	Watts
Plate Power Output	185	235	400	Watts

▶ PLATE MODULATED RADIO FREQUENCY AMPLIFIER

Class-C Telephony (Carrier conditions, per tube)

MAXIMUM RATINGS

D-C PLATE VOLTAGE	2500 MAX. VOLTS
D-C PLATE CURRENT	180 MAX. MA.
PLATE DISSIPATION	65 MAX. WATTS
GRID DISSIPATION	15 MAX. WATTS

TYPICAL OPERATION

D-C Plate Voltage	1500	2000	2500	Volts
D-C Grid Voltage	—300	—400	—500	Volts
D-C Plate Current	160	150	140	Ma.
D-C Grid Current	32	31	31	Ma.
Peak R-F Grid Input Voltage	530	655	750	Volts
Driving Power (approx.)	17	20	23	Watts
Grid Dissipation	8	7.5	7.5	Watts
Plate Power Input	240	300	350	Watts
Plate Dissipation	65	65	65	Watts
Plate Power Output	175	235	285	Watts

▶ Indicates change from sheet dated 7-1-44.



GRID VOLTAGE—VOLTS

-600 -400 -200 0 200 400 600 800

PLATE VOLTAGE — VOLTS

0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500

GRID CURRENT—MILLIAMPERES

550 500 450 400 350 300 250 200 150 100 50 25 10 0

10 10 0

PLATE CURRENT—AMPERES

0 .100 .200 .400 .600 .800 1.00 1.20 1.40 1.60 1.80 2.00

EIMAC 100TL
CONSTANT CURRENT
CHARACTERISTICS



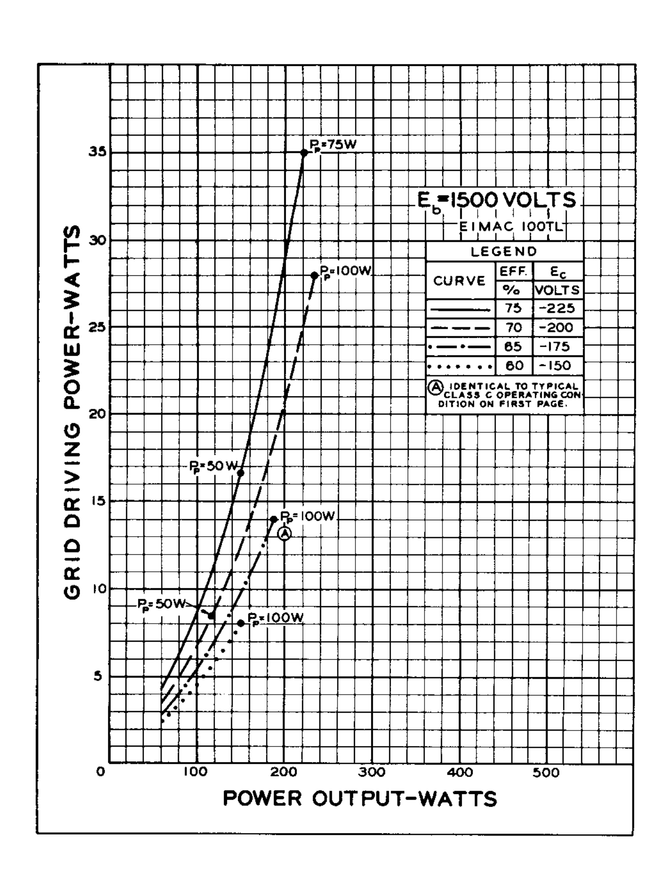
DRIVING POWER vs. POWER OUTPUT

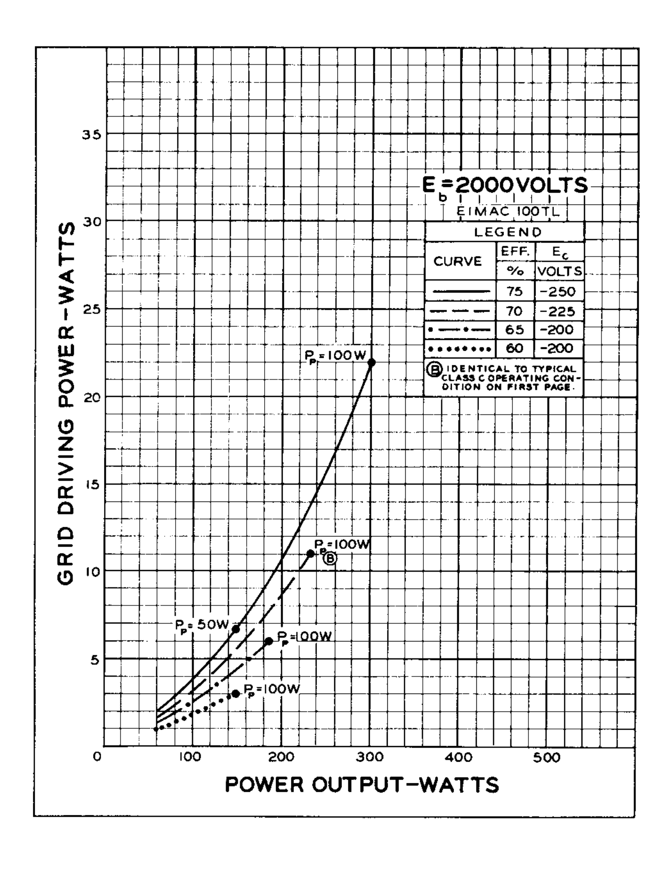
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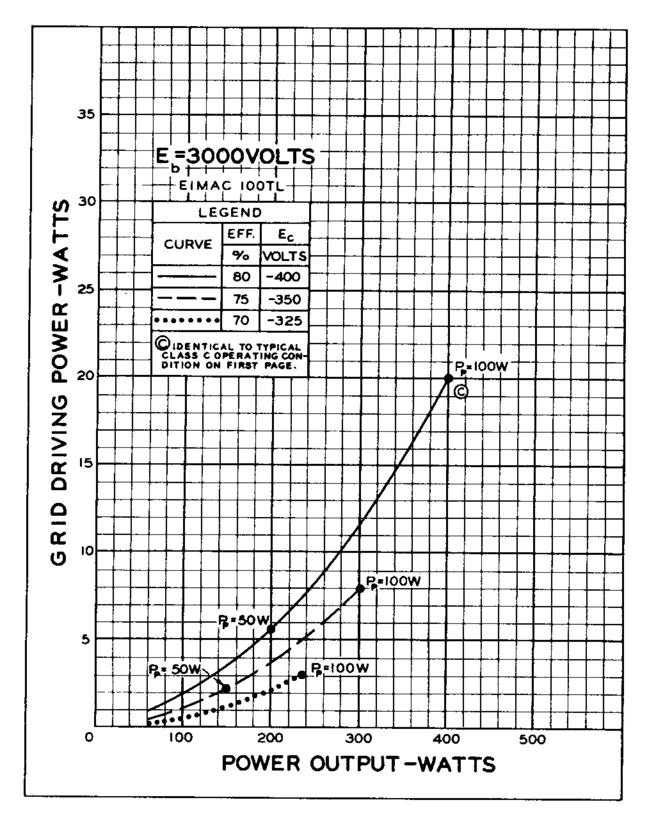
The three charts on this page show the relationship of plate efficiency, power output and grid driving power at plate voltages of 1500, 2000 and 3000 volts. These charts show combined grid and bias losses only. The driving power and power output figures do not include circuit losses. The plate dissipation in watts is indicated by P_p.

Points A, B, and C are identical to the typical Class C operating conditions shown on the first page under 1500, 2000, and 3000 volts respectively.

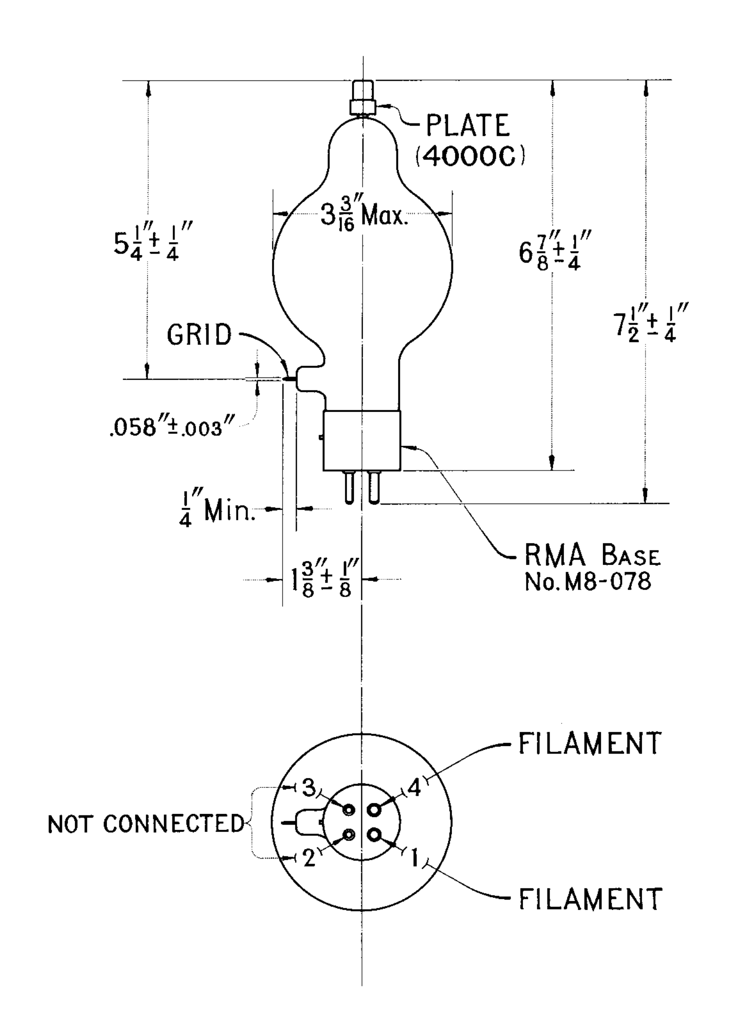
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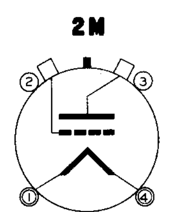


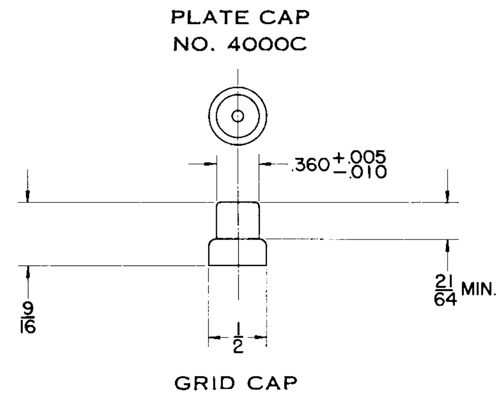





Eimac
100TL


PLATE
(4000C)
3 3/16" Max.
5 1/4" ± 1/4"
6 7/8" ± 1/4"
7 1/2" ± 1/4"
GRID
.058" ± .003"
1/4" Min.
1 3/8" ± 1/8"
RMA Base
No. M8-078
FILAMENT
NOT CONNECTED
3
4
2
1
FILAMENT


2M
2
3
1
4


PLATE CAP
NO. 4000C
.360 +.005 −.010
21/64 MIN.
9/16
1/2
GRID CAP
(SEE TUBE OUTLINE DRAWING)

2-G4-32501